ALTENBURGER

Multi-Sensor-Lighting Controls for Lighting Automation

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ELECTRONIC GMBH

DALI

KNX

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Colors and form designs of ceiling recessed housing

white*

white*

black*

black*

beige*

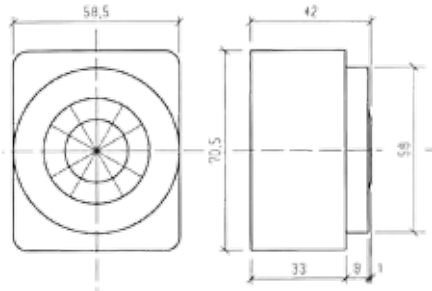
beige*

stainless steel polished or brushed

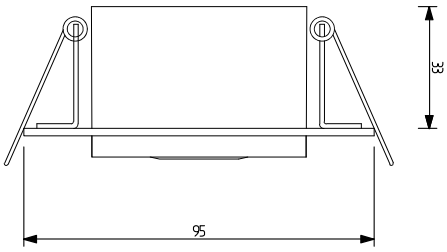
stainless steel polished or brushed

* Other colors available (RAL-colors).

Multi-Sensor-Lighting Controls



Ceiling mounted design



ALTENBURGER Multi-Sensor-Controls ensure a maximum possible level on reliability, energy conversation and comfort in lighting automation.
They are suitable for all types of lamps in connection with electronic ballasts or transformers with 1-10 V interface or for ALTENBURGER load dimmers.
For non-dimmable lamps Multi-Sensor-Lighting Value Control Switches (MS-LRS, see page 8) or Multi-Switches (MS, see page 9) are applicable.

Main characteristics of all Multi-Sensor-Dimmers are:

- 1-10 V/0-10 V interface for the control of electronic ballasts, transformers or ALTENBURGER load dimmers,
- manual lighting control (with the functions BRIGHTER, DARKER, ON/OFF),
- daylight dependent constant light control,
- automatic switch-off of lighting as soon as daylight exceeds the preselected constant light level or if no presence is detected,
- automatic switch-on of lighting as soon as presence is detected or the daylight potion falls below the preselected constant light level,
- switch capacity of 5 A, higher loads can be switched with relays or contactors,
- possibility to deactivate presence detection,
- extension of detection area by combining of up to 6 Multi-Sensor-Dimmers,
- all Multi-Sensor-Dimmers can be combined with all types of ALTENBURGER load dimmers,
- 360° detection area of the Multi-Sensors with 9 m in diameter at a mounting height of 2.5 - 3 m, for extension of the detection area, one master Multi-Sensor-Dimmer can be assigned up to 5 Multi-Sensor-Dimmer in slave mode.

Ceiling mounted design

MSD Multi-Sensor-Dimmer

Daylight dependent constant light control with presence detection and with setting of constant light value at the MSD or by remote customary pushbutton.

Characteristics:

- The MSD controls fluorescent lamps and low-voltage halogen lamps with dimmable electronic ballasts or transformers with 1-10 V interface or up to 3 ALTENBURGER load dimmers.
  - Switch capacity: up to 5 A, higher loads can be switched with relays or contactors.
  - Load capacity of dimmers: up to 8 kW via its integrated 0-10 V interface.
- The daylight dependent constant light value can be preselected directly at the MSD or with an external pushbutton. The pushbutton is also suitable for the manual control with the functions BRIGHTER, DARKER, ON/OFF.

Type	**MSD**
Order-No.:	50.13.500

Ceiling recessed design with square cover

Type	**MSD/Q**
Order-No.:	50.13.500Q
Color	see Page 3

Ceiling recessed design

Colors and material samples of cover plates in ceiling recessed design:

Prices are available for all colors and materials according to table.

Ceiling recessed design with round cover

Type	**MSD/R**
Order-No.:	50.13.500R
Color	see Page 3

Ceiling mounted design

Type	**MSD-T**
Order-No.:	50.13.520

MSD-T Multi-Sensor-Dimmer with external light level setting and manual lighting control with customary pushbutton

Daylight dependent constant light control with presence detection and external push-dimmer-control.

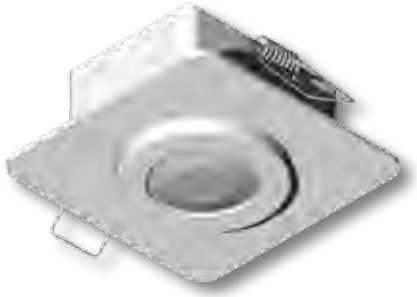
- press pushbutton: Switch-on/off lighting
- press pushbutton on: Switching-on lighting

  The lighting goes in the last stored light level and can now be dimmed brighter or darker (the control is now in manual mode).
- hold down pushbutton: Dimming the light brighter/darker,

  After release of the pushbutton the lighting will remain at the current light level.
- double press: The current light level will be stored as the new daylight dependent constant light level.

Any numbers of pushbuttons can be switched in parallel.

Applications:
In rooms where the constant light level quite frequently has to be changed and where manual lighting control is desired.



Ceiling recessed design with square cover

Type	**MSD-T/Q**
Order-No.:	50.13.520Q
Color	see Page 3

Ceiling recessed design with round cover

Type	**MSD-T/R**
Order-No.:	50.13.520R
Color	see Page 3

Pushbuttons:
For the aforementioned functions, commercially available pushbuttons can be used.

Ceiling mounted design

Type	**MSL**
Order-No.:	50.13.510

Ceiling recessed design with square cover

Type	**MSL/Q**
Order-No.:	50.13.510Q
Color	see Page 3

Ceiling recessed design with round cover

Type	**MSL/R**
Order-No.:	50.13.510R
Color	see Page 3

MSL Multi-Sensor-Dimmer with minimum/maximum limitation

The MSL operates presence dependent and controls the lighting between any pre-selectable upper light level (at presence detection) and any preselectable lower light level (if no presence is detected). The minimum/maximum limitation can be adjusted directly at the MSL.

Alternatively the MSL can be applied for the presence dependent switching of lighting or other loads.

Characteristics:

- The MSL switches the lighting between preselectable minimum and maximum light levels,
- the maximum light level will be achieved as soon as presence is detected and the daylight falls below the preselected light level,
- the minimum light level will be achieved if no presence is detected,
- the presence detection switch function of the MSL can also be used for the control of fans, air-conditioners, heaters, etc.
- the functions daylight dependent control and/or presence detection can be deactivated directly at the MSL,
- with the code switches at the back of the MSL altogether 7 different operating modes can be selected (for details please see the manual),
- the load capacity of the switch outlet is 5 A, higher loads can be switched with relays or contactors by a voltage-free contact,
- 360° detection area of the Multi-Sensors with 9 m in diameter at a mounting height of 2.5 - 3 m, for extension of the detection area, one master Multi-Sensor-Dimmer can be assigned and up to 5 Multi-Sensor-Dimmer in slave mode.

Applications:
In buildings areas where a minimum brightness of lighting shall apply, even if no presence is detected. If presence is detected, the lighting shall be dimmed to a preselected upper light level. Suitable for all areas where a minimum brightness is required and at the same time energy shall be saved, such as corridors, staircases, functional areas in hospitals, foyers, spas, etc.

Ceiling mounted design

Type	**IR-MSD**
Order-No.:	50.13.540

Ceiling recessed design with square cover

Type	**IR-MSD/Q**
Order-No.:	50.13.540Q
Color	see Page 3

Ceiling recessed design with round cover

Type	**IR-MSD/R**
Order-No.:	50.13.540R
Color	see Page 3

IR-MSD Multi-Sensor-Dimmer with IR- control for programming and retrieval of light scenes and light values

The IR-MSD is suitable for the programming and retrieval of lighting scenes or light levels with a handheld IR-transmitter. For the control of the IR-MSD two IR-transmitter are available.

Characteristics:

- Pre-selection of constant light value, turn-off delay, semi-automatic mode and switchable presence detection directly on the IR-MSD. Extension of programming and operation via an IR-transmitter with the additional functions:
  - programming and retrieval of up to 3 constant light levels (static scenes),
  - programming and retrieval of up to 3 lighting scenes (dynamic scenes),
  - manual lighting control with the functions BRIGHTER, DARKER, ON/OFF with customary pushbutton,
  - interlocking of pushbutton control through IR-transmitter,
  - external pushbutton control is also suitable for switching, dimming and scene-programming of lighting,
  - individual pre-selection of turn-off delay if any presence can be detected.
- 360° detection area of the Multi-Sensors with 9 m in diameter at a mounting height of 2.5 - 3 m, for extension of the detection area, one master Multi-Sensor-Dimmer can be assigned up to 5 Multi-Sensor-Dimmer in slave mode.

Applications:
In all areas with multi-purpose use where a fast and easy adjustment of lighting is required, i.e. conference rooms, schools and universities, training rooms, hospitals etc.

IR-MSD Transmitter

Type 1
U-IR I

Type 2
U-IR II

Type	**U-IR I**
Order-No.:	50.13.545

Type	**U-IR II**
Order-No.:	50.13.546

IR-Transmitter for programming and retrieval:

IR-MSD Transmitter, Type 1 (U-IR I)
For programming and retrieval of lighting scenes (up to 3 static scenes and up to 3 dynamic scenes), for pre-selection of the constant light level and for manual lighting control with the functions BRIGHTER, DARKER, ON/OFF.

IR-MSD Transmitter, Type 2 (U-IR II)
For programming and retrieval of lighting scenes (up to 3 static scenes and up to 3 dynamic scenes), for pre-selection of the constant light level and for manual lighting control with the functions BRIGHTER, DARKER, ON/OFF as well as for the pre-selection of all specific fade times and turn-off delays.

Type	**IR-TM**
Order-No.:	50.13.544

IR-Transmitter for programming and retrieval of static- and dynamic lighting scenes:

The transmitter allows the following controls:

- programming and retrieval of up to 3 dynamic lighting scenes which work daylight and presence-controlled,
- programming and retrieval of up to 3 static lighting scenes which work independent of daylight but presence-controlled.

Ceiling mounted design

Type	MS-LRS
Order-No.:	50.13.530

Ceiling recessed design with square cover

Type	MS-LRS/Q
Order-No.:	50.13.530Q
Color	see Page 3

Ceiling recessed design with round cover

Type	MS-LRS/R
Order-No.:	50.13.530R
Color	see Page 3

MS-LRS Multi-Sensor-Light Value Control Switch for presence and daylight dependent switching of lighting.

Characteristics:

- Easy integration in existing illuminations (no dimmable electronic ballasts are required),
- the daylight dependent switch values (switch-on/off of lighting) can be pre-selected directly on the MS-LRS or can be defined with an external pushbutton,
- the pre-selection of the daylight dependent switching on/off values can be additional controlled with an external rotary potentiometer with integrated switch-function.
- switch capacity: up to 5 A, higher loads can be switched with relays or contactors.

Applications:
In all areas where dimming is not necessary but where the lighting should be switched automatically on/off, i.e. corridors, restrooms, ...

Rotary potentiometer with integrated switch on/off pushbutton

Type	DPUT
Order-No.:	51.01.022

The potentiometer DPUT sets the light level at which the lighting shall be switched in dependence of the daylight. A hysteresis of 12.5 % is integrated in the Multi-Sensor MS-LRS.

Ceiling mounted design

Type	**MS**
Order-No.:	50.13.535

Ceiling recessed design with square cover

Type	**MS/Q**
Order-No.:	50.13.535Q
Color	see Page 3

Ceiling recessed design with round cover

Type	**MS/R**
Order-No.:	50.13.535R
Color	see Page 3

MS Multi-Switch

Characteristics:

- The Multi-Switch is suitable for:
  - daylight and presence dependent switching of lighting,
  - individual disabling of presence dependence, lighting will be switched only daylight dependent,
  - individual disabling of daylight dependence, lighting will be switches only presence dependent,
  - individual pre-selection of the turn-off delay if no more movement is detected, adjustment range 1 - 60 minutes,
  - signalizing the end of the turn-off delay 30 seconds in advance,
  - adjustment of the daylight dependent switch-on values between 30 to 300 lux,
- With the integrated switching threshold automatic the Multi-Switch determine independently the daylight dependent switch-on/off values under respect of the required hysteresis,
- switch capacity: up to 5 A, higher loads can be switched with relays or contactors,
- 360° detection area of the Multi-Sensors with 9 m in diameter at a mounting height of 2.5 - 3 m, for extension of the detection area, one master Multi-Sensor-Dimmer can be assigned up to 5 Multi-Sensor-Dimmer in slave mode.

Type	**AQ-MSS**
Order-No.:	50.14.140

AQ-MSS Multi-Sensor-Dimmer for DIN rail systems and for the connection of up to 6 Multi-Sensors

Suitable Sensors:
LBS/e, LB/k, LB/b (see page 17)

Characteristics:

- The AQ-MSS controls fluorescent lamps or low-voltage halogen lamps with dimmable electronic ballasts or transformers with 1-10 V interface. Up to 100 single or twin electronic ballasts can be controlled directly by one AQ-MSS.
  For illumination which requires load dimmers, up to 3 load dimmers with an individual capacity of up to 8 kW (leading-edge or lagging/trading-edge mode) can be controlled by one AQ-MSS via its integrated 0-10 V interface.
- Programming of the daylight dependent constant value with an external pushbutton with the functions BRIGHTER, DARKER, ON/OFF.
- The connected individual Multi-Sensors are forming an average value for constant light control. If one Multi-Sensor detects presence, it will switch-on the entire connected illumination.
- With an external pushbutton connected at the AQ-MSS up to 8 additional functions can be used (please see user manual).
- Switch capacity: up to 5 A, higher loads can be switched with relays or contactors.

Applications:
Suitable for all building areas with complex floor plans or where a flexible functionality is required, i.e. libraries, corridors, hotels, foyers, hospitals, shopping malls, exhibitions, open-place offices, etc.

Multi-Sensors for EIB/KNX Lighting Controls

Ceiling mounted design

Type	**IBMSD**
Order-No.:	80.14.800

IBMSD EIB/KNX-Multi-Sensor-Dimmer
The IBMSD is suitable for the constant light control with presence detection within the EIB/KNX-Bus. The pre-selection of the constant light level can be carried out directly on the IBMSD or via an external EIB/KNX control.

For extension of the detection area up to 5 individual Multi-Sensors can be assigned to an IBMSD in master mode.

Suitable Multi-Sensors are:
LS/d, LB/b, LB/k, LBS/s, LBS/de (please see page 17).

Characteristics:

- The IBMSD controls fluorescent lamps and low-voltage halogen lamps with dimmable electronic ballasts or transformers with 1-10 V interface or up to 3 ALTENBURGER load dimmers via the EIB/KNX-bus.
  - Switch capacity: up to 5 A, higher loads can be switched with relays or contactors.
  - Load capacity: up to 8 kW via its integrated 0-10 V interface.
- EIB/KNX project planning with the following functions:
  - switch-on/off of lighting,
  - dimming up/down of lighting,
  - pre-selection and retrieval of constant light values,
  - enable/disable of constant light control,
  - enable/disable of presence detection,
  - additional pre-selectable and presence dependent switch-on/off command for i.e. external switching of heaters, fans, air-conditioners (via EIB/KNX-actuators).
- 360° detection area of the Multi-Sensors with 9 m in diameter at a mounting height of 2.5 - 3 m, for extension of the detection area, one master Multi-Sensor-Dimmer can be assigned up to 5 Multi-Sensor-Dimmer in slave mode.

Applications:
For all building areas with EIB/KNX building management systems where Multi-Sensor-Controls are required and additional functions for visualization and monitoring are desirable, i.e. foyers, banks and insurance buildings, public administration, transport facilities and warehouses.

Ceiling recessed design with square cover

Ceiling recessed design:

Ceiling recessed design with round cover

Type	**IBMSD/Q**
Order-No.:	80.14.800Q
Color	see Page 3

Color and material samples of cover plates in ceiling recessed design: please see page 3.

Prices are valid for all colors and all materials.

Type	**IBMSD/R**
Order-No.:	80.14.800R
Color	see Page 3

IBMSC NV EIB/KNX Multi-Sensor-Controller
With the possibility of the connection of maximal 6 multi-sensors for the extension of the range of presence detection and a more extended acquisition of daylight.

Type	**IBMSC-NV**
Order-No.:	80.14.810

Characteristics:

- Control of lighting circuits with ballasts or transformers with 1-10 V interface or with load dimmers.
- The range of presence detection can be extended with up to 6 multi-sensors (see page 13)
- One of the functions ‚daylight dependence' or ‚presence detection' can be deactivated.
- The control circuit is included in the Multi-Sensor Controller. The external sensors are providing for the necessary commands.
- The switch capacity of the Controller is 16A
- Range of detection with up to 6 sensors can further be extended with IBMSC Controllers (see page 10) via the EIB/KNX bus up to 64 IBMSC.

Ceiling recessed design with square cover

Ceiling recessed design with round cover

EIB/KNX 3-channel light value control switch

IBLWS 3
Daylight dependent EIB/KNX 3-channel light value controls switch

Characteristics:
The IBLWS 3 controls 3 lighting circuits in dependence of the daylight. The light levels for switching ON/OFF can be set for each light circuit at the LWS 3 between 20 and 2000 Lux as well as between 200 and 20000 Lux.

With the ETS software it is decided if the switch telegrams shall be sent after the set light levels are exceeded or fallen below.

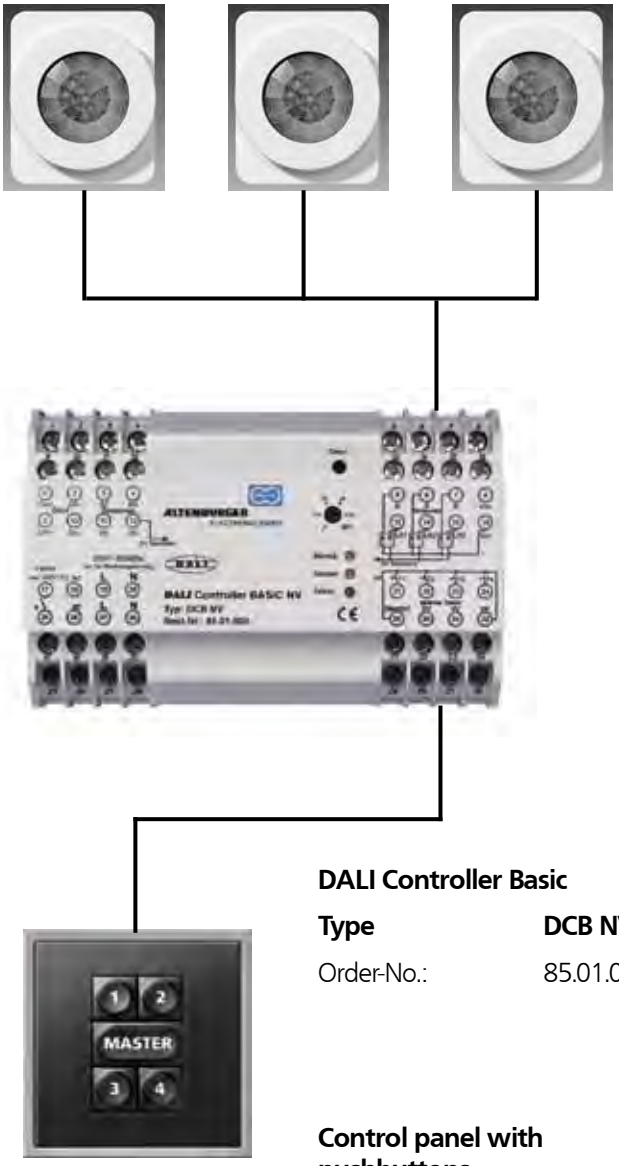
Type	**IB-LWS3**
Order-No.:	80.14.016

Applications:
Sports halls, swimming pools, parking lots, multi-storey carparks, logistic centres, warehouses, factories, train stations, airports, outdoor restaurants.

Type	**LF/w/D**
Order-No.:	51.21.010

Accessory: LF/w/D
Light sensor, swivelling, IP 55
The LF/w/D acts together with the aforementioned controllers IB-LWS3 or AQAD-D (see page 15), the LWS 1, LWS 3 and LM 3 (see pages 15 -16)

Multi-Sensors for light and motion



DALI Controller Basic

Type	**DCB NV**
Order-No.:	85.01.000

Control panel with pushbuttons

Type	**CTM 5T**
Order-No.:	51.01.326

Pushbutton control panels with the functions:

- Master switching or master dimming of all DALI ballasts with the master pushbutton
- Assignment of the DALI-ballast to one of the 4 groups
- Switching and dimming of up to 4 groups
- Setting and selection of up to 4 lighting scenes
- Pushbutton 1 (scene 1) is applicable for the daylight dependent control if multi-sensors are connected

Suitable multi-sensor-dimmer, type MSD (see page 4) or the multi-sensor-types:
LS/d, LB/b, LB/k, LBS/d, LBS/de (see page 18).

- The controller recognizes automatically connected multi-sensors, addresses scene 1 and controls lighting in scene 1 daylight-and motion dependent
- Maximal 5 sensors additionally can be connected.

DCB NV DALI-Controller Basic Multi-Sensor-Dimmer in connection with DALI-controls

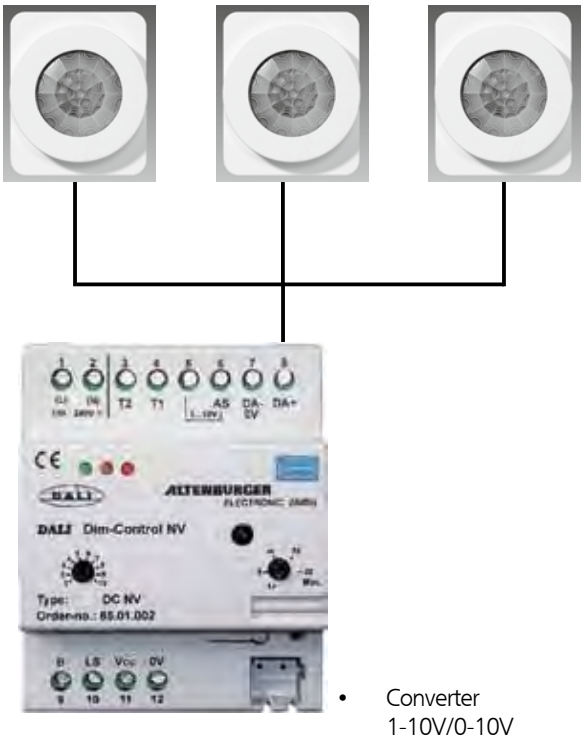
Up to 6 multi-sensors can be switched in parallel in connection with the DALI-Basic Controller for motion detection and constant light control for 3 areas.

Characteristics:

- Multi-Sensor-controls of illuminations with up to 64 single or twin DALI-ballasts
- For the extension of the range of motion detection up to 6 multi-sensors can be switched in parallel.
- All connected sensors automatically are computing a mean value of the individually acquired light levels.
- Additionally to the multi-sensor-controls further functions can be programmed and selected with the DCB NV (see manual).

Functions:
Programming and selection of 4 lighting scenes. Any assignment of lamps to one of the 4 groups without any installation work. Multi-sensor-controls (combined daylight-and motion dependent lighting control) or performing of just one of both functions. The ON/OFF switching is integrated in the control. An infrared or radio control in connection with the ALTENBURGER IR-control type: IR-ST/S, Order-No: 50.13.142 can be maintained.

Multi-Sensors for light and motion



DC NV DALI Dim/Converter Controller

Type **DC NV**

Order-No.: 85.01.002

- Converter 1-10V/0-10V analog-> DALI
- 1-pushbutton switch dim function
- 2-pushbutton switch dim function
- and multi-sensor-control.

1 pushbutton switch-dim functions

Type **CTM 1T**

Order-No.: 51.01.320

1 pushbutton switch dim functions

- ON/OFF, Brighter/ Darker
- Light level setting through double click
- The set light level is a switch ON value

2 pushbuttons switch dim functions

Type **CTM 2T**

Order-No.: 51.01.321

2 pushbuttons switch dim functions

- ON/Brighter, Darker/OFF
- Setting of the light level through continuous click of the two buttons
- The set light level is a switch ON value.

DALI Dim/Converter Control DCNV

- The DALI-Dim/Converter Control automatically identifies the connected multi-sensors and controls the lighting in dependence of the daylight and motion.
- Up to 6 multi-sensors can be connected for the extension of the range of detection.

DC NV Multi-Sensor-Control with the DALI Dim/Converter Control 1-10V/0-10V analog ->DALI

The DC NV offers with its selector switch the following options:

- The module converts analog signals (e.g. of multi-sensors with 1-10V interface) into DALI signals. With the multi-sensor dimmer up to 100 DALI-ballasts or transformers can be dimmed in dependence of the daylight and motion.
- Similarly signals from potentiometers or ALTENBURGER Dimmers with 0-10V interface can be converted to the DALI-interface.

Suitable are multi-sensor dimmers, type MSD (see page 4) and the multi-sensor-types: LS/d, LB/b, LB/k, LBS/d, LBS/de (see page 18).

Characteristics:
The DC NV is suitable for the control of the following DALI-installations:

- Combination with multi-sensors
- Dimming with potentiometers
- ON/OFF switching with analog control voltages
- Operation with ALTENBURGER controls (e.g. control panels with up to 6 pushbuttons for different light values: Brighter, Darker, daylight dependent controls etc.)
- The module offers direct lighting control functions:
  - 1 pushbutton switch-dim function (brighter-darker, ON/OFF)
  - 2 pushbuttons switch dim function (Brighter-darker-ON/OFF) light level setting, set light level as switch ON value.

The module identifies automatically if multi-sensors are connected with their daylight- and motion-dependent functions. One of both functions can be deactivated.

Up to 6 multi-sensors can be connected to one module for the extension of motion detection.

The delay time after the end of motion detection can be set between 1 and 30 min. at the DC NV.

After this time range lighting dims down to a minimum of approx. 1 % and finally switches OFF after 10 min.

Type **AQAD-S**
Order-No.: 50.14.116

AQAD-S constant light control

Daylight dependent constant light control with automatic ON/OFF switching for electronic ballasts or transformers with 1-10V interface or for up to 3 ALTENBURGER load dimmers with 0-10 V interface.

Characteristics:
The AQAD-S controls up to 100 single or twin electronic ballasts or electronic transformers with 1-10V interface or up to 3 ALTENBURGER dimmer with a load capacity of up to 8 KW with 0-10 V interface. Its switch capacity is 10A.

The light value to be kept constant in dependence of the daylight is to be set with an external potentiometer with integrated pushbutton, type DPUT-S or with an internal potentiometer at the AQAD-S.

The AQAD-S operates in connection with the daylight sensors type LF/w/D.

Applications:
Sports halls, indoor swimming pools, fitness- and wellness areas, cafeterias.

Type **LF/w/D**
Order-No.: 51.21.010

Accessory: LF/w/D

Light-sensor, swivelling, IP 55
The LF/w/D works in combination with the IB-LWS 3, the AQAD-S, LWS1, LWS3 and LM 3

Type **DPUT-S**
Order-No.: 50.50.002

Accessory: DPUT-S

External potentiometer for the setting of the light level to be kept constant with integrated ON/OFF pushbutton.

Type **LWS1**
Order-No.: 50.14.011

LWS 1, 1-channel light value control switch

Daylight dependent control switch for one circuit, suitable for all types of lamps.

Characteristics:

Range of operation:
With the slide switch the range of operation can be set from 10 -1000 lux and from 200 - 20000 lux.

Switch value setting:
With a potentiometer ‚switch OFF value' the value is set where the lighting shall switch OFF. With the potentiometer ‚switch ON value' the percentage of the switch off value is set at which the re-engagement shall apply. This percentage could be in the range of 50% and 95 %. If e.g. the switch off value is set to 500 lux and the switch ON value on 80% the lighting switches ON as soon as it falls below 400 lux.

Delay times:
With two potentiometers delay times can be set between 5 secs and 20 min after which the lighting circuit shall switch ON or OFF.

Switch capacity:
The LWS 1 has a switch capacity of 10 A/250V~. With its voltage free contact lamps of all kind can be directly switched or for a power gain with relais or contactors.

Accessory: Light sensor TypeLF/w/D

Type **LF/w/D**
Order-No.: 51.21.010

Dimmers and switches operating in dependence of the daylight

Type **LWS3**
Order-No.: 50.14.016

Accessory: LF/w/D
Light-sensor, swivelling, IP 55
The LF/w/D works in combination with the IB-LWS 3, the AQAD-S, LWS1, LWS3 and LM 3

Type **LF/w/D**
Order-No.: 51.21.010

LWS 3 ,3-channel light value control switch

Daylight dependent control switch for 3 circuits, suitable for all types of lamps.

Characteristics:

Range of operation:
With the slide switch the range of operation can be set from 10 -1000 lux and from 200 - 20000 lux.

Switch value setting:
For 3 light circuits the switch values can be set individually for each circuit with potentiometers. With the potentiometers switch value 1,2 and 3 the switch Off values are being set. The hysteresis for the switch ON is 10 %. If the daylight is 10% below the set light level lighting switches ON again.

Display
The LED at the module shows the switch status of the lighting to be expected. As soon as an LED flashes up lighting is switched ON or switches ON after the expiration of the set delay time.

Delay times:
With two potentiometers the delay times between 5 secs and 20 min can be set after which lighting is switched ON or OFF.

Switching output:
The LWS 3 has a switch capacity of 3x10 A/250V. With its voltage free contact all kind of lamps kind can be switched directly or for a power amplification via relais or contactors.

Application:
Open offices, indoor swimming pools, hospitals, gymnasiums, warehouses, high-rise parking garages, outskirt areas.

Type **LM3**
Order-No.: 50.14.102

Accessory: LF/w/D
Light-sensor, swivelling, IP 55
The LF/w/D works in combination with the IB-LWS 3, the AQAD-S, LWS1, LWS3 and LM 3

Type **LF/w/D**
Order-No.: 51.21.010

Electronic lux-instrument transformer for 3-channels, type LM 3

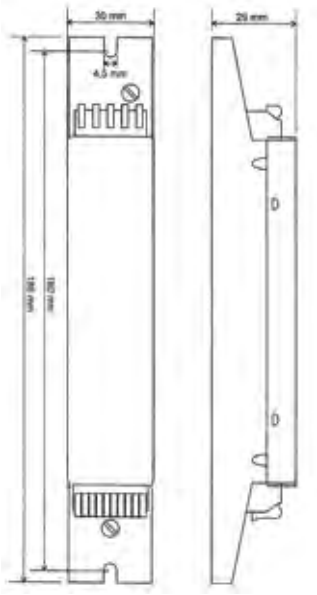
Characteristics:
The LM3 acquires for each circuit from a light sensor the brightness and transforms it into a linear D/C in parallel to the brightness. To each circuit an individual light sensitivity (measuring range) can be assigned. Ex works a working range of 0-20000 lux has been set. The light levels are being transformed into a voltage of 0-10V.

Applications:
The LM3 is important for the automation in lighting and building management systems. It receives its signals from 3 Light sensors type LF/w/D (1 sensor per channel).

Multi-Sensors for the fitting into light fixtures

KMSS Multi-Sensor-Dimmer for the fitting into light fixtures

Type **KMSS**
Order-No.: 50.13.321



The KMSS with separate multi-sensor operates in dependence of the daylight and motion detection

Characteristics:

- The KMSS provides an 1-10V interface for electronic ballasts for fluorescent lamps or electronic transformers for low-voltage halogen lamps as well as for Altenburger phase-controlled or phase-interval controlled dimmers. It performs a constant light control and a presence detection with an integrated automatic switch off function.
- Energy savings: 70 % and more
- Increases the life span of all types of dimmable lamps
- Short payback periods
- Slim design for the insertion into light fixtures
- Set point adjustment with a pushbutton
- Optional: dimming control through pushbuttons
- Selection of functions: with a selector switch
- The combination of several KMSS extends the range of acquisition. In this case a mean value of the brightness at the different sensors is formed.
- A maximum of 100 ballasts or transformers can be controlled
- A maximum of 30 electronic ballasts or transformers can be switched (please refer to the technical data)
- Service off duty hours (semi-automatic operation – switch ON function to be made just manually).

Applications:
Floor, wall and ceiling lamps, furniture with integrated lamps, lumious walls and ceilings, under-floor and staircase lighting, swimming pool lighting.

Mini-Constanter

Type **MK/1L**
Order-No.: 50.13.400

Type **MK/LSK**
Order-No.: 50.13.411

Daylight-dependent, compact constant light control for the fitting into light fixtures with fluorescent lamps, low-voltage halogen lamps or LED lamps with dimmable electronic ballasts or transformers with 1-10V interface

Characteristics of type MK/1L:

- simple connection to the lamp: just 2 wires at the output of the electronic ballast or transformer.
- No additional voltage supply required
- Suitable for the control of up to 100 single or twin electronic ballasts or 100 electronic transformers with 1-10V interface.

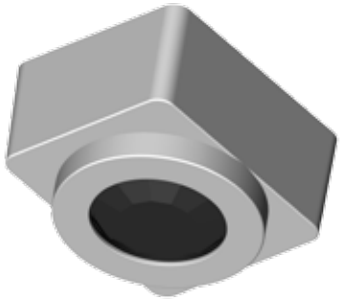
Characteristics of the type MK/LSK
Mini-Constanter with stainless steel clamp for fluorescent tubes with a diameter of 26 mm or compact fluorescent lamps, including 60 cm connecting cable.

Applications:
Lighting installations of all kind with dimmable electronic ballasts or transformers with 1-10 V interface.

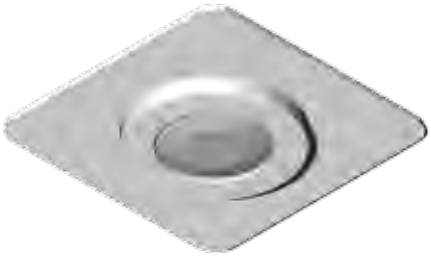
Multi-Sensors

LS/d

Daylight-dependent sensor (ceiling mounted) in connection with EIB/KNX and DALI DC NV controllers (see pages 11 and 14)
Up to 6 sensors can be switched in parallel.



Type **LS/d**
Order-No.: 51.21.032



Ceiling-recessed housing with square coverplate

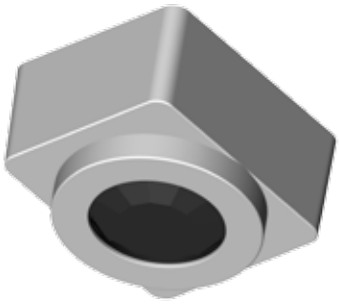
Type **LS/d/Q**
Order-No.: 51.21.032

Ceiling-recessed housing with round coverplate

Type **LS/d/R**
Order-No.: 51.21.032

LBS/d

Multi-Sensor Dimmer, ceiling mounted in combination with EIB/KNX and DALI-Controllers DC NV (see pages 11 and 14).



Type **LBS/d**
Order-No.: 51.21.031

The LBS/d has no own control. As in combination with other sensors the control is integrated in the different types of controllers (up to 6 sensors per controller).

Ceiling-recessed housing with square coverplate

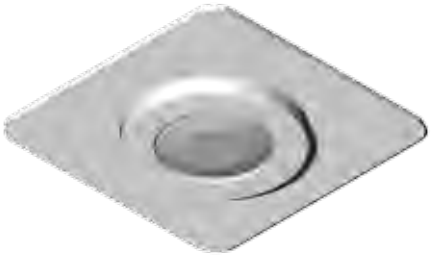
Type **LBS/d/Q**
Order-No.: 51.21.031

Ceiling-recessed housing with round coverplate

Type **LBS/d/R**
Order-No.: 51.21.031

LB/b

Multi-Sensor for the AQ-MSS controller (page 9)



Type **LB/b/Q**
Order-No.: 51.21.046/Q

LB/k und LB/dk

Multi-Sensors for the AQ-MSS, EIB/KNX and DALI-DC NV controllers (see pages 9 - 14), accommodated in swivelling downlight housings (up to 6 sensors per controller).

For the AQ-MSS Controller

Type **LB/k**
Order-No.: 51.21.037

For the EIB/KNX- and DC-NV DALI Controller:

Type **LB/dk**
Order-No.: 51.21.039

LBS/e

Multi-Sensor for the fixation in light fittings or ceilings

Type **LBS/e**
Order-No.: 51.21.030

Characteristics:
Directly for fixation into light fixtures or in combination with ceiling mounted or recessed housings (see above).
Suitable controllers:

- AQ-MSS
- KMSS

LBS/de

Multi-Sensor for light fittings or ceiling mounted or ceiling recessed housings in connection with the controllers EIB/KNX, or DALI DC NV (up to 6 LBS/de can be switched in parallel)

Type **LBS/de**
Order-No.: 51.21.033

Type **KSV-S**
Order-No.: 50.13.300

KSV-S Signal amplifier for the fitting in light fixtures

The KSV-S is a current amplifier for the lighting control of large lighting groups with dimmable electronic ballasts for transformers with 1-10V interface. It is a supplementary module for all dimmers with 1-10V interface.

Characteristics

- The KSV-S has the same input characteristic as electronic ballasts or transformers with 1-10V interface and consequently can be combined with the respective dimmers.
- Its load capacity is 200 mA, sufficient for at least 200 single or twin ballasts or transformers.
- Additional signal amplifiers can be switched in parallel so that the total load capacity can be multiplied. The power dissipation is 2 VA.

Applications:

Large lighting systems with dimmable electronic ballasts and transformers with 1-10V interface or indoor and outdoor applications in connection with:

- Multi-sensor-dimmers (traffic installations, logistic centres, furniture stores, swimming pools, gymnasiums)
- In connection with multi-sensor-dimmers with maximum/minimum limitation: high-rise parking areas, furniture stores, shopping malls (glass) passages, garden and landscape areas.

Type **SW**
Order-No.: 50.14.010

SW over- and under-voltage relay

The SW is suitable for the ON and OFF Switching in dependence of control variables like multi-sensor dimmers and switches, daylight-dependent controls, temperature controls, ventilators in dependence of temperature and humidity.

Characteristics:

The SW has 2 control inputs which alternatively can be used:

- control input 1: phase-control (leading edge control) with the setting range of 15 - 205 V effective
- control input 2: D/C setting range 1 – 20 V D/C
- The SW can be used for the direct switching of loads.
- A diode displays the switching state of the SW.

Applications:

- Switching of lighting groups in warehouses in dependence of a centralized sensor in dependence of the daylight.
- Temperature controls in spaceous areas in dependence of temperature sensors
- Sensor-dependent ventilation systems

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